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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/717,334	11/18/2003	Heung-Nam Han	71511/RSM	8281

7590 03/10/2005

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EXAMINER

EDMONDSON, LYNNE RENEE

ART UNIT	PAPER NUMBER
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1725

DATE MAILED: 03/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/717,334

Applicant(s)

HAN ET AL.

Examiner

Lynne Edmondson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11/18/03.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 November 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. The drawings are objected to because figures 2-4 are not clear. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

2. Claim 5 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper

dependent form, or rewrite the claim(s) in independent form. The materials can only be the same or different and thereby encompass all materials.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1 and 5 are rejected under 35 U.S.C. 102(e) as being anticipated by Midling et al. (USPN 5813592).

Midling teaches a conventional friction stir welding process comprising the steps of butting the workpieces, positioning a cylindrical pin or probe of harder material on the weld joint line and rotating and pressing the pin which by the nature of the process produces plastic deformation due to generation of frictional heat and joining the members by traversing the probe in a horizontal directional along the interface (col 2 lines 23-34 and figures 3 and 5a).

5. Claims 1, 2 and 5 are rejected under 35 U.S.C. 102(e) as being anticipated by Aono et al. (USPN 6585148 B2).

Aono teaches a conventional friction stir welding process comprising the steps of butting the workpieces, positioning a cylindrical pin or probe of harder material on the weld joint line and rotating and pressing the pin which by the nature of the process produces plastic deformation due to generation of frictional heat and joining the members by traversing the probe in a horizontal directional along the interface (col 2 lines 25-52 and Table 1). The probe has diameter more than twice the thickness of the workpieces (figure 2 and col 9 lines 56-63).

6. Claims 1 and 3 are rejected under 35 U.S.C. 102(e) as being anticipated by Forrest et al. (US 2005/0035179 A1).

Forrest teaches a double pass friction stir welding process comprising the steps of butting the workpieces, positioning a cylindrical pin or probe of harder material on the weld joint line and rotating and pressing the pin which by the nature of the process produces plastic deformation due to generation of frictional heat and joining the members by traversing the probe in a horizontal directional along the interface with a small probe (figure 4 and paragraphs 29-31).

7. Claims 1 and 4 are rejected under 35 U.S.C. 102(e) as being anticipated by Duncan, Jr. (USPN 6726084 B2).

Duncan teaches a conventional friction stir welding process comprising the steps of butting the workpieces, positioning a cylindrical pin or probe of harder material on the weld joint line and rotating and pressing the pin which by the nature of the process produces plastic deformation due to generation of frictional heat and joining the members by traversing the probe in a horizontal directional along the interface with the known method of double pass welding with a smaller pin (figure 3 and col 5 lines 11-52). The probe has a plurality of protrusions (figures 4A, 4D and 7).

8. Claims 1 and 3-5 are rejected under 35 U.S.C. 102(e) as being anticipated by Trapp et al. (USPN 6676004 B1).

Trapp teaches a conventional friction stir welding process comprising the steps of butting the workpieces, positioning a cylindrical pin or probe of harder material on the weld joint line and rotating and pressing the pin which by the nature of the process produces plastic deformation due to generation of frictional heat and joining the members by traversing the probe in a horizontal directional along the interface with the known method of double pass welding with a smaller pin (col 2 lines 25-52 and Table 1). The probe has a plurality of protrusions (figure 1).

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Thomas et al. (GB 2306366 A, general friction stir welding, claimed method, pin with protrusions), Tomizawa et al (JPN 2001-321965 A, small pin,

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welding both sides), Aota et al (USPN 6237829 B1 A, small pin, welding both sides), Cocks (USPN 6029879, pin protrusions), Ezumi et al. (US 2003/0042293 A1, claimed method) and Campbell et al. (USPN 6199745).

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lynne Edmondson whose telephone number is (571) 272-1172. The examiner can normally be reached on Monday through Thursday from 6:30 a.m. to 5 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (571) 272-1171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Lynne Edmondson
Primary Examiner
Art Unit 1725

LRE

LYNNE R. EDMONDSON
PRIMARY EXAMINER

clg
3/3/05